

REMARKS

Claims 1-26 are pending in the application.

Applicants respectfully request additional consideration and review of the claims in view of the following remarks.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1-3, 5-9, and 11-26 under 35 U.S.C. §103(a) as being unpatentable over Martin et al. (U.S. Patent No. 6,038,170 B1) in view of Dolby et al. (U.S. Patent 6,038,231). Applicants respectfully submit that even if it were obvious to combine Martin and Dolby in the manner suggested in the Office Action, the resulting combination would not embody Applicants' inventive teachings nor anticipate Applicants' claims.

As stated in the prior amendment, a purpose of Applicants' claimed invention is to communicate the existence of faults that occur in a data communications system when, for example, a separate signaling link or channel, which could otherwise be used to signal to various network elements the existence of a fault, does not exist. Applicants' claimed invention communicates the existence of faults to a corresponding receiver by transmitting a signal loss code, for example, in place of the data that would otherwise be transmitted. This aspect of Applicants' claimed invention is pointed out, for example, in independent claim 1 that calls for a multiplexer interface that is adapted "to apply said signal loss code insert to said multiplexer in place of said data packets from said at least one of said first Gigabit Ethernet links having said first loss of signal". Since the multiplexer output is ultimately transmitted over an optical link to a receiver, the transmission of the signal loss code insert in place of the data packets causes the existence of a fault or faults to thus be made known at the receiving end of the recited optical link. See, for example, page 16, lines 18-20 in Applicants' specification where this aspect of the invention is discussed.

Turning now to the cited references, Martin is generally concerned with providing a configuration for transporting high rate data signals. At a first node, Martin multiplexes high-speed SONET formatted signals, such as OC-48 signals, into higher rate SONET formatted signals, such as OC-192 signals. These higher rate SONET formatted signals are then transported across an optical fiber to a second node for processing. Dolby provides a method of reducing bandwidth used on a telecommunications link. Dolby suppresses the silence in constant bit rate services by transporting the services over cell-based asynchronous transfer mode (ATM) networks. Dolby teaches that cells having payloads of data, which follow a predictable pattern, can be suppressed. The egress regenerates data based on the payload of the received cell preceding the missing cell. Also, Dolby discloses that a dummy cell can be inserted in the case of a missing cell.

In the Office Action, the Examiner acknowledges that Martin does not clearly teach that TMux messages or the AIS are transmitted in place of the data as in Applicants' claimed invention. The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the dummy cell insertion from Dolby into the high speed SONET transmission system in Martin. Applicants assert, however, that even if the cited references could be combined, the resulting combination would not embody Applicants' inventive teachings nor anticipate Applicants' claims.

Based on Applicants' understanding of the Office Action, Martin's SONET overhead BIP-8 bytes received by the fault detector, Martin's alarm inhibit signal (AIS), and Dolby's dummy cell inserts are viewed by the Examiner as loss of signal code inserts. Applicants will address each item separately.

First, Applicants' claimed invention generates a signal loss code insert after detecting a loss of signal in an input/output link. The signal loss code insert is transmitted to a receiver along a portion of an optical link in place of the data packets from the at least one of the first Gigabit Ethernet links having the first loss of signal. In Martin, the BIP-8 bytes are used for error monitoring, as stated, for example, in column 4, lines 46-54. The BIP-8 bytes are a part of the SONET overhead, and are inserted in the SONET formatted signal before transmission.

As is known in the art, the BIP-8 byte value is calculated over all bits of the previous STS-N frame after scrambling. However, contrary to Applicants' claim 1, the SONET BIP-8 bytes are generated as SONET overhead and inserted in the SONET signal before detecting loss of signal and carried with the SONET signal even after detecting the loss of signal.

Second, the signal loss code insert in Applicants' claimed invention is transmitted to a receiver along a portion of an optical link in place of the data packets from the at least one of the first Gigabit Ethernet links having the first loss of signal. However, contrary to Applicants' claim 1, Martin's AIS information is added to the outgoing signal, as stated in column 8, lines 23-26, rather than being transmitted in place of the data packets as in Applicant's claim 1.

Third, Applicants' claimed invention uses the same path for the data and the signal loss code insert. However, contrary to Applicants' claim 1, within Martin's TMux '40', one path is used to transport the signal payload, and a separate path is used to communicate the loss of signal. (See TMux '40' in FIG. 6) These distinctions are sufficient to distinguish Applicants' claim 1 from Martin.

Fourth, as noted previously, Applicants' claimed invention communicates the existence of a fault by transmitting a signal loss code in place of the data that would otherwise be transmitted. Dolby discloses that a state machine can insert a dummy cell in the case of a missing cell. However, Dolby's dummy cells are not signal loss codes transmitted to communicate the existence of a fault. Dolby's dummy cells are inserted as a substitute for missing data, as indicated in column 10, lines 57-60. This distinction alone is sufficient to distinguish Applicants' claim 1 from Dolby.

Combining Martin with Dolby would not embody Applicants' claimed invention. As noted above, Applicants' claimed invention transmits the loss of signal code insert to a receiver in place of data packets. This means that Applicants' claimed invention uses the same signal path for 1) data packets that originate from "working" links that later contain faults that prevent the transport of the data packets and 2) the signal loss code insert. Neither Martin nor Dolby teach this limitation, either when taken individually or in combination. Contrary to

Applicants' claim 1, Martin uses one path to transport the signal payload (i.e. data bytes), and a separate path to communicate loss of signal within the TMux. (See FIG. 6) Also, Dolby discloses dummy cells that are substitutes for missing data, and are not signal loss code inserts transmitted to communicate the existence of a fault. Combining Martin with Dolby would still result in two separate paths for the signal payload and loss of signal indicators. These distinctions are sufficient to distinguish Applicants' claim 1 from the proposed combination of Martin and Dolby.

The Martin and Dolby combination does not teach or suggest the limitations recited in Applicants' independent claim 1 for the above-mentioned reasons. Since claims 2-6 and 21 depend from claim 1, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 2-6 and 21.

Independent claim 7 has a limitation similar to that in independent claim 1. Claim 7's limitation calls for "transmitting said signal loss code insert to said receiver in place of said data packets from said at least one of said first Gigabit Ethernet links having said first loss of signal". The Martin and Dolby combination does not teach or suggest this limitation for the above-mentioned reasons. Since claims 8-12 and 22 depend from claim 7, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 7-12 and 22.

Independent claim 13 has a limitation similar to that in independent claim 1. Claim 13's limitation calls for "transmitting a fault-identifying signal to the receiver along at least a portion of said optical link in place of said data". The Martin and Dolby combination does not teach or suggest this limitation for the above-mentioned reasons. Since claim 23 depends from claim 13, this dependent claim is therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 13 and 23.

Independent claim 14 has a limitation similar to that in independent claim 1. Claim 14's limitation calls for "means for transmitting a fault-identifying signal to the receiving node along at least a portion of said optical link in place of said data". The Martin and Dolby combination does not teach or suggest this limitation for the above-mentioned reasons. Since claim 24 depends from claim 14, this dependent claim is therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 14 and 24.

Independent claim 15 has a limitation similar to that in independent claim 1. Claim 15's limitation calls for "means for applying said fault-identifying signal to the output port corresponding to one of said input ports having said loss of signal in place of said data". The Martin and Dolby combination does not teach or suggest this limitation for the above-mentioned reasons. Since claims 16, 17 and 25 depend from claim 15, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 15-17 and 25.

Independent claim 18 has a limitation similar to that in independent claim 1. Claim 18's limitation calls for "means for applying said fault-identifying signal to said output port having said loss of signal in place of said data". The Martin and Dolby combination does not teach or suggest this limitation for the above-mentioned reasons. Since claims 19, 20 and 26 depend from claim 18, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, the combination of Martin and Dolby does not embody Applicants' claims 18-20 and 26.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1-3, 5-9, and 11-26.

Allowed Claims

Applicants appreciate the Examiner's indication that claims 4 and 10 would be allowable if rewritten in independent form including all limitations of the respective base and intervening claims.

In view of the remarks set forth herein, Applicants believe that claims 4 and 10 are allowable in their present form by virtue of their dependency from the base claims. As such, for reasons related to prosecution efficiency, Applicants have not amended these dependent claims at the present time, but instead would prefer to reserve the right to do so in the future as appropriate.

Conclusion

In view of the foregoing amendments and remarks, Applicants submit that claims 1-26 are in condition for allowance, and reconsideration is therefore respectfully requested. If there are any outstanding issues that the Examiner feels may be resolved by way of a telephone conference, the Examiner is invited to contact the undersigned to resolve the issues.

Respectfully submitted,

Dhritiman Banerjee

By 

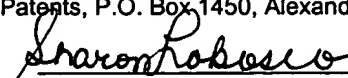
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